Revised Edition

LEARNER'S WORKBOOK

P.7

Mathematics

Term 1 2025

Index No. _____

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PREFACE

This Primary Seven Workbook is an effort by **Eng.faizo 0757519913 | 0760770082** of **Canaan Junior School Kamuli** towards making the planning, teaching and learning processes easier, interesting and more meaningful.

Developed basing purely on the **NCDC P.7 curriculum**, the expert has looked at the material as outlined starting from the Themes through Topics to the Competences to generate the content in this **workbook**.

The generated content will swiftly guide the instructional process through simplified understanding as well as fast and comprehensive coverage of the syllabus.

The outlined notes are relatively simple and suitably usable by both the teacher and the learner.

The aim of the **workbook** just like all other products is deeply rooted in producing quality instructional materials tailored towards **Academic Excellence**.

This **workbook** will surely be very resourceful in our noble endeavor of instruction of **MATHEMATICS**.

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THEME: SETS

TOPIC: SET CONCEPTS

SUB-TOPIC: TYPES OF SETS

COMPETENCES: The Learner;

- defines the term sets.
- describes all the types of sets.

Content	Evaluation Activity
A set. A set is unordered collection of unique objects, known as elements or members, that can be anything like numbers, letters, people etc. **The key characteristics of a set.** 1. **Unordered**: The elements in a set do not have a specific order or arrangement. 2. **Unique elements**: Each element in a set is distinct and cannot be repeated. 3. **Well-defined**: A set is defined clearly, so it's known what is included and what is not. **Types of sets.** 1. **Equal sets**: These are sets with the same members, same in appearance and number. The symbol for equal sets is = **Example** Given that: **A = {4,6,8,9}** **B = {8,9,6,4}** **Observation** Members of set A and set B are exactly the same in number and appearance. **Set A and set B are equal sets.** 2. **Unequal sets**: These are sets with different number of members and elements. The symbol for un equal sets is ≠ **Example** Given that: **x = {a,b,c,d,e}** **y = {6,4,5,7}**	2. Write down 10 examples of **empty sets**. 3. Write down the **symbols** for the following sets. 4. Given that set P ={a,b,c,d,e,f,g} and set Q = {1,3,7,8,9,4,2}. Describe set P and set Q

Empty set	Equal set
Unequal set	Equivalent set
Intersection of sets	Union of sets

Observation

Set x and set y have different number of elements.

Set x and set y are unequal sets.

3. **Equivalent sets**: These are sets with the same number of elements but of different kind.

   The set symbol is ⟷

Example

Given that: **m = {book, cup, cat} and**

n = {1, 3, 5}

Observation

Set m and set n are of different kind but with the same number of elements.

Set m and set n are equivalent sets.

4. **Empty set / Null/ Void**: These are sets with no elements.

   The set symbol is ϕ

Example

- A set of pupils in a class with no eyes.
- A set of dogs with 15 legs.
- A set of cows with 2 legs each

5. **Union of sets**:

   A union of sets is a set containing all members of the given number of sets without repeating common members.

   The set symbol is ∪

Example

1. Given that set A = {2,3,4,5,6,7} and B = {3,4,9,6,8,2}. Find

   i) AUB

   A = {2,3,4,5,6,7}

   B = {3,4,9,6,8,2}

   AUB = {2,3,4,5,6,7,8,9}

   ii) n(AUB)

   n(AUB) = 8

6. **Intersection of sets**:

An intersection of sets is a set containing common members in the given number of sets.

The set symbol for Intersection of sets is ∩

5. Given that set W = {6,5,7,9} and set X = {a,b,f,g}. Describe set **w** and set **x**.

6. Given that M = {teachers with 10 heads each}. Describe set **M**

7. Given that set R = {boy,girl,man} and set S = {man,boy,girl}. Describe set **R** and set **S**.

8. Given that C = {4,,7,2,5,3,6} and set D = {7,9,8,4,3,0}. Find

   i) C n D

   ii) n(CnD)

9. Given that set S= {6,3,5,4,2} and set T = {7,9,6,3,8,1}.

   Find;

   i) SUT

   ii) n(SUT)

Example

Given that set T = {a,b,c,d,e,f,g} and Set S = {a,e,i,o,u}.

Find

i) T n S

T = {a,b,c,d,e,f,g}

S = {a,e,i,o,u}

T n S = {a,e}

ii) n(T n S)

n(T n S) = 2

10. Given that set P = {w,o,m,a,n} and set Q = {m,o,n,e,y}. Find

i) P n Q

ii) n(PnQ)

iii) PUQ

iv) n(PUQ)

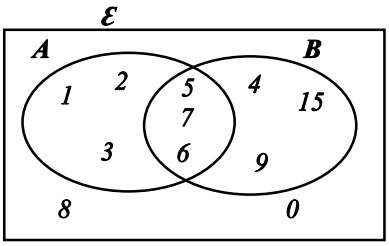
7. Universal set:

A universal set is a set that contains all members.

The set symbol for the Universal set is **Ɛ**

Example

Study the Venn diagram below and answer the questions that follow.



List down all the elements of

a) set A

A = {1,2,3,5,7,6}

b) Set B

B = {5,7,6,4,15,9}

c) A n B

A n B = {5,7,6}

d) AUB

AUB = {1,2,3,5,7,6,4,15,9}

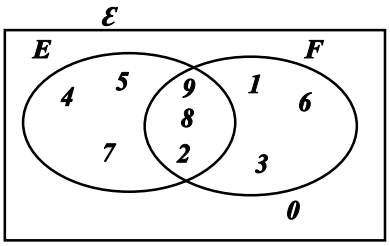
e) ε

ε = {1,2,3,5,7,6,4,15,9,8,0}

Evaluation Activity

Study the Venn diagrams below and answer questions that follow.

1.



List down the elements of;

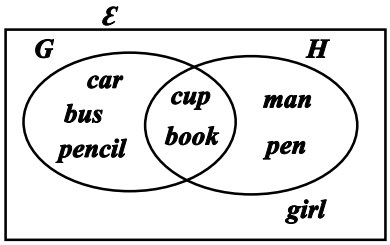
i) **E**

ii) **F**

iii) **E n F**

iv) **Ɛ**

2.



List down the elements of

i) **G**

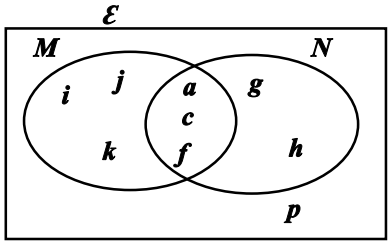
ii) **H**

ii) **G n H**

iii) **G U H**

iv) **Ɛ**

3.



List the members of

i) **M**

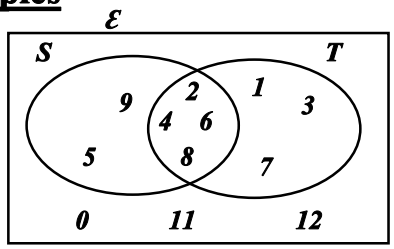
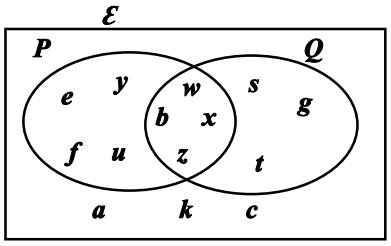
ii) **N**

iii) **M U N**

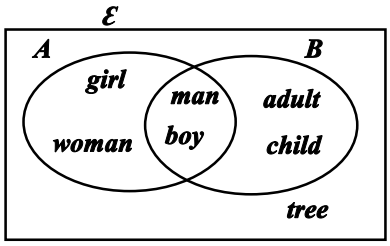
SUB-TOPIC: COMPLEMENT OF SETS

COMPETENCES: The Learner;

- describes complement of sets
- writes the symbol for complement of sets.

Content	
A **Complement of set** is a set which contains members that are outside the given (mentioned) set but a part of the universal set. The set symbol is $'$ **Examples**  Find; a) $(SnT)'$ **$(SnT)' = \{9,5,1,3,7,0,11,12\}$**	b) $(SUT)'$ **$(SUT)' = \{0,11,12\}$** c) S' **$S' = \{1,3,,7,0,11,12\}$** d) T' **$T' = \{9,5,0,11,12\}$** e) $S' \cap T$ **$S' \cap T = \{1,3,7\}$** f) $S \cap T'$ **$S \cap T' = \{9,5\}$**
Evaluation Activity	
Study the Venn diagrams below and answer questions that follow. 1.  List down the elements of; i) **P** ii) **Q**	iii) **P n Q** iv) **PUQ** v) **ε** vi) **P'** vii) **Q'**

2.



List down the elements of

i) **A**

ii) **B**

iii) **AnB**

iv) **AUB**

v) **ε**

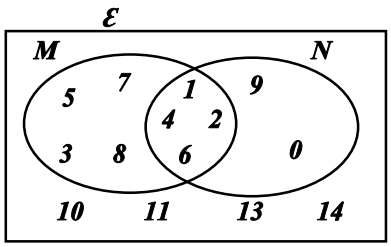
vi) **A′**

vii) **B′**

viii) **(AnB)′**

ix) **(AUB)′**

3.



List the members of

i) **M**

ii) **N**

iii) **N′**

iv) **(M U N)′**

v) **M′ n N**

vi) **M n N′**

SUB-TOPIC: DISJOINT SETS

COMPETENCES: The Learner;

- describes disjoint sets.
- identifies disjoint sets.

<table>
<tr><th colspan="2">Content</th></tr>
<tr><td><u>Disjoint sets</u>
These are sets with no common members.
<u>Examples</u>
1. If X = {a,b,c,d} and Y = {m,n,p}. Describe set X and set Y.
Since set X and set Y have no common members, therefore,
<u>set X and set Y are disjoint sets.</u></td><td>2. If P = {2,4,6,8} and Q = {1,3,5,7}. Describe set P and set Q.
P n Q = $\emptyset$
<u>Set P and set Q are disjoint sets</u>.

3. If T = {20,30,40} and S = {b,f,g} Describe set T and set S. Describe T and S

T n S = $\emptyset$
<u>Set T and set S are disjoint sets</u>.</td></tr>
<tr><th colspan="2">Evaluation Activity</th></tr>
<tr><td>Use the following pairs of sets to identify disjoint sets.
1. A = {2,4,6,8}
B = {2,5,7,9}</td><td>2. P = {a,b,c,d}
Q = {2,3,5,7}</td></tr>
<tr><td>3. T = {cow, boy}
P = {2,3,5}</td><td>4. N = {cup, ball}
M = {8,9,3}</td></tr>
<tr><td>5. S = {f,g,h,i,k}
T = {4,6,8}</td><td>6. D = {factors of 12}
E = {Multiples of 6 less than 30}</td></tr>
</table>

SUB-TOPIC: FINITE AND INFINITE SETS

COMPETENCES: The Learner;

- describes finite and infinite sets.
- names, identifies and forms finite and infinite sets.
- gives oral examples of finite and infinite sets

<table>
<tr><th colspan="2">Content</th></tr>
<tr><td><u>Finite sets</u>
These are sets whose elements can be listed.

Finite sets are sets which have specific members that represent themselves and others.

<u>Examples</u>.
- A set of days of the week.
- A set of vowel letters.
- A set of the months of the year.</td><td><u>Infinite sets</u>
These are non-terminating sets (endless).

Examples.
- A set of counting numbers.
- A set of integers.
- A set of prime numbers.
- A set of triangular numbers.</td></tr>
<tr><th colspan="2">Evaluation Activity</th></tr>
<tr><td>List, count and write the number of all members in the following finite sets.
1. A is a set of English alphabet.</td><td>2. A set of whole numbers.</td></tr>
<tr><td>3. C is a set of all months of the year.</td><td>4. A set of counting numbers</td></tr>
<tr><td>5. E is a set of all multiples of 2 between 10 and 30</td><td>6. A set of even numbers.</td></tr>
</table>

SUB-TOPIC: SUBSETS

COMPETENCES: The Learner;

- describes the word subset.
- identifies the symbol for subsets.
- lists subsets which can be obtained from a given set

<table>
<tr><th colspan="2">Content</th></tr>
<tr><td><u>Subset</u>
A <u>subset</u> is any part of a given set.
✓ A subset is any set that can be formed obtained from another set.
✓ The symbol for a subset is ⊆
✓ The formula is 2^n where n is number of elements in the given set.
<u>Examples</u>.
1. Given that X = {2,4,6}. List down the subsets of X.

<u>Subsets ϕ , {2}, {4}, {6}, {2,4}, {2,6}, {4,6}, {2,4,6}</u></td><td>2. Given that P = {a,b}. List down the subsets of P
<u>Subsets ϕ , {a}, {b}, {a,b}</u>

3. If set K = {0,2,4,6}. List down all the subsets of set K.

<u>Subsets ϕ, {0}, {2}, {4}, {6}, {0,2}, {0,4}, {0,6}, {2,4}, {2,6}, {4,6}, {0,2,4}, {0,2,6}, {0,4,6},{2,4,6},{0,2,4,6}</u></td></tr>
<tr><th colspan="2">Evaluation Activity</th></tr>
<tr><td>List, count the subsets in the following sets.
1. B = {a,b}</td><td>2. D = {x,y}</td></tr>
<tr><td>3. C = {1,2,3}</td><td>4. T = ϕ</td></tr>
<tr><td>5. K = {a,d,e,f}</td><td>6. E = {p,q,r,s}</td></tr>
</table>